

**Final Reflection on
My 2021 Summer Enrichment Experience at
University of Chicago online**

Minseo Jung

This summer, I took a 3-week course at the University of Chicago's Pathways in Economics Calculus-Based. The course was an introduction to rigorous Chicago-style economics, learning about four critical fields of economics: price theory, game theory, experimental economics, and macroeconomics.

Live Zoom Class

Every day I attended a Zoom class with the lecturer, who changed every two or three days depending on subjects we cover, and the other 60 students in the program. There were eight full-time lecturers to teach an hour and a half live zoom class.

In class, my lecturer introduced the new topics to cover for that day and provided economic analysis from a neoclassical economic perspective. For instance, the neoclassical theory states that economic growth is the result of three factors: labor, capital, and technology. The economy may have limited resources in capital and labor, yet there are boundless contributions that technology can contribute to economic growth. Another theory covered was Keynesian economics, a macroeconomic theory of total spending of the economy and its effects on employment, inflation, and output. My lecturer explained how it is hard to explain applied this theory in procyclical average labor productivity, a positive impact on labor productivity. I liked learning how the theories were applied to examples in real life as it differed from learning it from texts in high school.

Throughout the classes, by showing several approaches to economic research and experimentation used in UChicago, all the lecturers introduced and encouraged us to think like an economist: conceptualize ideas into models, test the implications of these models by creating an experiment and study a wide range of socio-economic problems. For instance, during the final week, my lecturer asked the students if looking at more data is better for studying the nation's economy. While the majority of students agreed, my lecturer explained looking at more data is not always the best. Having lots of data is usually good to increase the accuracy and prevent the randomness of the data trend; however, after a certain amount of data, noise rates are extremely high, and the trend will be covered by an unnecessary range of data, especially when data have resulted from human actions. It was an eye-opening moment as the conclusion drawn as an economist was different from that of a statistician.

The course not only covered economic theories and perspectives but also covered calculations used in economics. I especially enjoyed learning the rule of 70 to calculate the investment rate, tax rate, and sales tax. The formula is as follows: dividing the growth rate by the number 70. While the rule itself is a mathematical calculation, it influenced the decision-making of the investors and the state governments. Since how long it takes to double the investment at a certain interest rate can be found with the rule, my lecturer explained possible actions driven by the result of the calculation.

While all the topics taught by the lecturers were intriguing and insightful, I personally enjoyed learning about the marriage market and stable matching during the first week the

most. Using the Gale-Shapley algorithm, the stable marriage problem considers if the given scenario has stable matching, perfect matching with no unstable pairs. A matching is stable if no man and woman would prefer to be matched to each other over their current partner. Although it was a new topic, the algorithm was rather easy to learn once the pattern becomes familiar. When solving a stable matching problem, I was amused by the pattern of the Gale-Shapley algorithm as it seemed to be solving a puzzle.

Group sessions and Outside of Class

After each class, students are divided into four different groups with one TA. Led by the UChicago economics students, the group sessions are held for an hour and a half for students to ask any questions about the material covered in class that day. TAs help students have a firm grasp of the topic by answering the questions, reviewing the material once again, and providing guidance for the final project. To actively engage in class, I found TA sessions extremely helpful to absorb the new materials that are college-level topics.

The program is rigorous not only for the topics covered in class but also for the asynchronous work. Besides classes, I received assignments every week, ranging from two problem sets, two final tests, and a final project to review the materials covered in class and pre-recorded videos and reading before class. Usually, before the live lectures, the readings and video lectures were assigned to understand the course material covered in class. Topics such as the price theory and the game theory were completely new topics for high school students as they are both college-level economics. Thus, in order to catch up in class and have a thorough understanding of the subjects, these pre-recorded lectures and readings were necessary. For the final test, I drew time path plots showing how per capita capital stock, per capita output, and per capita consumption diminishes half of the capital stock after a natural disaster. With these plots, I found the relationship between capital stock and per capita stock.

Final Thoughts

These 3 weeks have been an insightful journey for me to learn deeply about economics. As a high school student, I never had a chance to learn about economics academically but enjoyed learning about its significant impact on our society through my extracurriculars, research, and internships. This course confirmed my long-time passion for pursuing economics career in the future. The course has expanded my intellectual thinking by adding a new economic perspective and provided lessons about wide applications of economics, inspiring me to look for solutions to many socio-economic problems in this world. Looking back on the past three weeks, it is incredible to see how much I have learned, how many wonderful scholars I have met, and how I can utilize the economic perspectives I learned recently. I would like to thank the Garwin Family Foundation for allowing me to open my eyes to a new fascinating field that has been my long-time passion.